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with problems of perturbation, they are applied, in this essay, first, to a very simple example, suggested by the motions of projectiles, the parabolic path being treated as the undisturbed; and secondly, to the problem of determining the motions of a ternary or multiple system, with any laws of attraction or repulsion, and with one predominant mass. This latter problem, which was touched upon in the former essay, is here resumed in a new manner, by forming and integrating the differential equations of a new set of varying elements, entirely distinct in theory (though little differing in practice) from the elements conceived by Lagrange; and having this advantage, that the differentials of all the new elements for both the disturbed and disturbing masses may be expressed by the coefficients of one disturbing function.

An Account of the Eruption of Mount Etna in the year 1536, from an original cotemporary document, communicated in a letter to J. G. Children, Esq., Secretary of the Royal Society. By Sir Francis Palgrave, K.G.H., F.R.S.

Record Office of the Treasury, Chapter House,
Poets' Corner, Westminster, Jan. 14, 1835.

Amongst various shreds and fragments of the correspondence from Italy during the period that Henry VIII. was negotiating with the Italian princes, is a document of a very different nature from the rest, being an extract from a letter written by the Barone di Burgis, dated at Palermo, 10th of April 1536, and giving an account of the then recent eruption of Mount Etna.

"Die xxij. Martij, M. D. xxxvi., nocte, Mons Ethna qui nunc Mongibellus vocatur; facto, orientem versus, ostio, emisit materiam igneam, quæ ad instar fluminis vagata est per octo miliaria in longitudine, et per unum miliare in latitudine; ejus vero altitudo erat palmarum duodecim. Eâdem nocte ignis extinctus est, et ubique remansit nigra materies prædictæ altitudinis duodecim palmarum. Ignis totam liquefecit nivem, quæ ad instar rapidi torrentis tanto impetu defluit, ut domus, arbores, et quicquid obviam esset secum traheret.

"Sequentibus autem diebus scissa sunt alia ostia numero tredecim, quæ miro strepitu ignem evomebant ad instar bombardarum; longeque ab his per unum miliare cadebant ingentia saxa, quorum aliquot judicata sunt ponderis ultra quindecim cantanorum. Post strepitum sequebatur odor sulphureus per aliquot miliaria in locis circumvicinis. Tantus erat impetus hujus igneæ materiei, ut arbores prostraret et evelleret antequam eas tangerat, sique veterem materiem incendiorum præteritorum sæculorum, offendeat, eam denuo incendeat.

"Ex quolibet ostio profluebant amplissimi rivi, qui aliquo in loco suâ latitudine unum miliare occupabant, erantque altitudine duodecim palmarum.

"Duravit hic ignis per sex dies, et singulâ quâque nocte aspiciebatur in cacumine montis, ignis; die vero, fumus.

"Sed cognosci nequibat quem faceret effectum, quia illuc ascendere non licebat propter relictam materiem incendii."